

## REMARKS

By the present Amendment, the Specification has been revised to correct the informalities noted by the Examiner with respect to the use of abbreviations for "degrees" and "seconds." Claim 2 has been rewritten to incorporate the recitations of parent claim 1 and dependent claim 4, hereby both canceled without prejudice or disclaimer of the subject matter thereof. Claim 13 has also been canceled, also without prejudice or disclaimer of the subject matter thereof. The cancellation of claim 13 renders moot the rejection of claim 13 under 35 U.S.C. §112, first paragraph, and objection raised to the drawings.

In the previous Office Action, claim 1 was rejected under 35 U.S.C. §102(b) or (e) as being anticipated by U.S. Patent No. 4,849,692 to Blood, or U.S. Patent No. 4,737,794 to Jones, or U.S. Patent No. 4,314,251 to Raab. In addition, claims 1-5 were rejected under 35 U.S.C. §102(b) or (e) as being anticipated by U.S. Patent No. 5,638,300 or U.S. Patent No. 5,907,819 both to Johnson (parent and continuation). Claims 6-12 and 14-19 were allowed. Applicants express their appreciation to the Examiner for the early indication of allowable subject matter in this application.

With respect to the rejection based on 35 U.S.C. §102(b) or (e), Applicants respectfully point out that in order to properly anticipate Applicant's claimed invention under 35 U.S.C. §102(b)/(e), each and every element of the claim in issue must be found, either expressly described or under principles of

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inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See M.P.E.P. §2131 (8th ed., Aug. 2001), quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. §2131 (8<sup>th</sup> ed. 2001), p. 2100-69.

Claim 2 is drawn to a golf swing measurement method comprising, among other things, fixing a three dimensional magnetic sensor to the grip portion of an impact implement. The direction of one axis of the sensor is aligned with a direction of an axis of a shaft of the golf club and one direction of an axis from among the other two axes being aligned with an impact direction of the golf club.

Regarding Blood, Jones and Raab, each disclose a three dimensional magnetic sensor having three mutually orthogonal axes for sensing magnetism (see, for example, Fig. 1 of Jones). There is, however, nothing disclosed in either Blood, Jones or Raab that teaches anything concerned with golf clubs, let alone measuring swing behavior. Nor do either of the Johnson references disclose anything about aligning one axis of a sensor with the axial direction of the shaft of a golf club and then aligning either of the remaining two axes with the impact direction as claimed. Johnson discloses attaching a sensor 20 (column 3, lines 49 to 60, as well as Figs. 5A and 5B of both Patents), yet they fail to disclose at least aligning one axis of the sensor with the axial direction of the shaft of a golf

club and aligning either of the remaining two axes with the impact direction, as claimed.

According to an embodiment of the present invention, if one axis of the sensor is aligned with the axial direction of the shaft of a golf club (such as is recited in claim 2), calculation of the shaft rotation angle employed for a swing analysis can be omitted (see, e.g., page 29, lines 6 to 10 of the specification). To align either of the remaining two axes with the impact direction allows one of the rotation angles of the sensor found upon impacting to be regarded as the shaft direction angle and utilized subsequently for effective swing analysis.

In contrast, the orientation of a sensor 20 is measured in Johnson in order to calculate the position of the face 25 of a golf clubhead from the information on the position and orientation of the sensor 20 using the rotation matrix of the sensor (column 6, lines 33 to 42). The orientation information of the sensor 20 is not used for any other purpose, nor recorded. The position of the sensor 20 attached to a golf club and the positions of the sensors 6 attached to several areas on a golfer's body are solely recorded. In Johnson, the position information of the sensors 6 and 20 is thus recorded because a swing analysis is carried out on the basis of the positions of the sensors 6 and 20 and the position of the golf clubhead, as described at columns 8 to 11. In other words, the information on the rotation of the shaft of a golf club is not employed for a swing analysis and, accordingly, the information on the rotation of the shaft of a golf club around its

rotational axis is not recorded, even though calculated. Johnson fails to disclose recording such information for a subsequent swing analysis.

As evident from the above, Johnson does not intend to attach a sensor to the shaft of a golf club, with one axis of the sensor being aligned with the axial direction of the shaft, so that easy-to-handle information about the orientation of the sensor and, as a consequence, accurate information on the rotation of the shaft may be obtained. In addition, Johnson does not disclose aligning either of the remaining two axes of the sensor with the impact direction. In Johnson, the sensor 20 is fixed to the grip portion of the club 8 using the prongs 24, as shown in Figs. 5A and 5B. There is no disclosure as to what direction the sensor should be attached.

Claims 3-5 are allowable at least because of their dependency from allowable claim 2.

Furthermore, Johnson does not disclose fixing a sensor to the end of the grip portion as recited in claim 5. As seen in Figs. 5A and 5B of Johnson, the sensor is not fixed to the end of the grip portion so that it would be difficult in Johnson to prevent measurement data from being influenced by flexure of the shaft of a golf club being swung. Consequently, a feature of the present invention, namely the ability to measure a swing "without being influenced by flexure of the impact implement" (page 6, lines 13 to 14 of the specification) would not be achieved.

In making the various references to the specification set forth herein, it is to be understood that Applicants are in no way intending to limit the scope of the claims to the exemplary embodiments shown in the drawings and described in the specification. Rather, Applicants expressly affirm that they are entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation and applicable case law.


In view of the foregoing remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: September 9, 2003

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